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SIMULATOR DEVICE FOR HUMAN FEMININE MAMMARY GLAND

Technical Field of the Invention

The present invention discloses a model for a human feminine mammary gland.

- 5 More particularly, the present invention discloses a model of a human feminine mammary gland for the detection of pathological occurrences.

Background of the Invention

- Inspection of the human female breast for identification of pathological occurrences is widely practiced. However, the tactile detection of pathological
- 10 occurrences in the human female mammary gland present a variety of challenges for women who perform self-examinations, as well as for medical personnel, educators, and trainers.

Summary of the Invention

- The present invention discloses a model of a human female breast. The model
- 15 according to the present invention recreates the internal and external characteristics of the human female breast and may be used to train medical personnel, educators, women and others in detection of pathological occurrences in the human female breast.

- In a preferred embodiment, the invention comprises a body comprising a filler material for simulating human female breast tissue, a base comprising a peripheral
- 20 edge and an upper surface for supporting the filler material, a cover comprising a peripheral edge and a first surface, and at least one pathological simulator element disposed within the filler material, wherein the peripheral edge of the cover sealingly engages the peripheral edge of the base to contain the filler material between the first

surface of the cover and the upper surface of the base, and wherein the base comprises a substantially rigid material.

In a further embodiment of the invention, a simulator comprises a body comprising a filler material for simulating human female breast tissue, a base comprising a peripheral edge and an upper surface for supporting the filler material, a
5 cover comprising a peripheral edge and a first surface, wherein the peripheral edge of the cover sealingly engages the peripheral edge of the base to contain the filler material between the first surface of the cover and the upper surface of the base, and a frame comprising an upper surface, wherein the upper surface comprises a recess and
10 wherein the base is secured in the recess, thereby securing the body to the frame.

In yet another embodiment of the invention, a body comprises a filler material for simulating human female breast tissue, a base comprising a peripheral edge and an upper surface for supporting the filler material, a cover comprising a peripheral edge and a first surface, an obdurate rib disposed within the filler material; and at least one
15 pathological element disposed within the filler material, wherein the peripheral edge of the cover is placed in sealing engagement with the peripheral edge of the base such that the filler material is contained between the first surface of the cover and the upper surface of the base and wherein the obdurate rib is disposed in a portion of the filler material that does not contain any of said at least one pathological element.

20 Thus, the present invention facilitates the examination of the female mammary gland by providing a model that may be used to train and educate specialized medical personnel and educators, as well as lay persons and women who want to improve their

ability to detect pathological occurrences and similar external and internal abnormalities in the female breast by palpitation and examination of the human female breast.

Brief Description of the Drawings

The present invention is illustrated in the accompanying drawings in which:

5 Figure 1 is a front view of a human female breast mounted to an instructional chart.

Figure 2 is a front view of a human female breast simulator.

Figure 3 is a cross-sectional view taken along sectional line III-III in Figure 2.

10 Figure 4 is a cross-sectional view similar to Figure 3 but including the device on an instructional chart.

Figure 5 shows a human female breast simulator being mounted to an instructional chart.

Detailed Description of the Preferred Embodiment

As shown in Figures 3 and 4, the human female breast simulator comprises a
15 body (1), a base (2), a filler material (3), and a cover (4). The base (2) supports the filler material (3) and comprises a rigid material, such as plastic, metal, wood, leather, rubber, and similar natural man-made materials. The filler material (3) shape and support to the body (1) and may comprise a variety of granular, flaked, fibrous, or similar materials such as seeds, sawdust, sand, flour, cotton, plastic, silicon, rubber,
20 light-weight metal, or similar materials in a gelatinous, gaseous, or liquid state that simulates the inner tissue of the human female breast. The filler material (3) provides a texture to the human female breast simulator to enable training for the tactile detection of fixed and floating pathological simulator elements (5A), (5B1), (5B2), (5C), which are

disposed within the filler material (3) and the body (1) of the human female breast simulator.

The fixed pathological simulator elements (5A) are secured to the base (2) within the filler material (3) of the body (1). The fixed pathological simulator elements (5A) may have an irregular and angular shape as shown in Figures 2 and 3 and may be manufactured from wood, minerals, metal, plastic, and similar rigid materials to stimulate the rigid pathologies that may occur in the human female breast. The floating pathological simulator elements (5B1), (5B2), (5C) may be disposed entirely within the filler material (3), unconnected to the base (2). The irregular-shaped floating pathological simulator elements (5B1), (5B2) have an irregular shape of a somewhat flattened outline, while the spherical floating pathological simulator elements (5C) have a generally spherical or round shape. The floating pathological simulator elements (5B1), (5B2), (5C) may comprise a soft, malleable material such as cotton, rubber, plastic, vinyl, and similar materials in a gelatinous, gaseous, or liquid state that stimulate the non-rigid pathologies that may occur within the soft breast tissue of the human female breast. In a preferred embodiment of the invention, the floating pathological simulator elements (5B1), (5B2) may be disposed within an elastic or similar casing or film.

In a preferred embodiment of the invention, the cover (4) is secured over the stuffing material (3) to the periphery of the base (2). The cover (4) is secured to the periphery of the base (2) to retain the stuffing material (3), the fixed pathological simulator elements (5A), and the floating pathological simulator elements (5B1), (5B2) within the body 1 of the human female breast model. The cover (4) may comprise an

elastic material such as rubber, fabric, animal skin, plastic, metallic screen, silicon, polyurethane, and similar materials that provide an elastic texture and characteristic to the cover (5). The external coating of the flexible cover (4) may comprise a variety of colors and textures. The colors may correspond to the different colors of the human skin, or they may correspond to any other color. The colors may be in a variety of variations and combinations.

As shown in Figures 1 and 2, the cover (2) of the body (1) comprises five defined regions. Region A represents the pigmented areola (6) and nipple (7). Regions B through E represent the four quadrants of the glandular area of the human female breast.

The nipple (7) may be configured to represent pathological simulators (7A), (7B), (7C), as shown in Figure 2. The nipple pathological simulators (7A), (7B), (7C) represent three aleatoric points, each of which corresponds to a type of secretion. Each of the nipple pathological simulators (7A), (7B), (7C) are susceptible to visual identification. Nipple pathological simulator (7A) represents a hemorrhage with a dark coffee-like color. Nipple pathological simulator (7B) represents a hemorrhage with a blood-like color. Nipple pathological simulator (7C) represents a hemorrhage with a crystalline, water-like color. The nipple pathological simulators (7A), (7B), (7C) may be emerged after the application of tactile pressure. Each of the base pathological simulator elements (5A), floating pathological simulator elements (5B), and the nipple pathological simulator elements (7A), (7B), (7C) represent a different pathological occurrence that may manifest itself within the human female breast.

The body (1) may be mounted to a frame (8), e.g., a chart, as shown in Figures 1, 4 and 5. The frame (8) may comprise a rigid material, such as cardboard, plastic, metal, wood, leather, acrylic, and similar materials. In one embodiment of the invention, the frame (8) may contain a recess (9). When the body (1) is mounted to the frame (8), the body (1) may be placed in the recess (9) of the frame to secure it to the frame (8).

The frame (8) further includes a variety of medical procedures and instructions that should be followed in the event that a particular pathological occurrence is detected. The frame (8) may also include public interest information, advertising, and similar marketing and informational material.

The body 1 of the human female breast model of the present invention may comprise a variety of shapes, including a half-pear shaped or half-teardrop shape to replicate the shape of a human female breast. The body (1) of the human female breast model also may be constructed on a base (2) having a triangular, circular, polygonal, or other shape and configuration to represent the human female breast.

In another embodiment of the invention, a costal arch (20) may be inserted within one of the quadrants B, C, D, E of the body (1) to represent a rib. In this embodiment, the costal arch can be inserted into a quadrant that does not include a pathological simulator element.

While the invention has been disclosed in this patent application by reference to the details of preferred embodiments of the invention, it is contemplated that a variety of modifications can be made, including substitution elements, as will readily occur to those skilled in the art, within the spirit of the invention and the scope of the claims.

CLAIMS

1. "SIMULATOR DEVICE FOR HUMAN FEMININE MAMMARY GLAND", to guide patient, nurses, doctors and the whole personnel of the medical, educational area and lay population in the detection of pathological occurrences, by touch, characterized by a
5 body (1), put upon to a base (2) made by rigid material, as plastic, metal, wood, formic, leather, rubber, etc., serving as support to the stuffing material (3) that gives volume to the body (1); the stuffing material is normally prepared with many different material like small particles, as grains, flakes, seeds, sawdust, sands, flour, cotton, floss, plastic, scum, silicon, rubber, light metal, etc., or gelatinous, gaseous or liquid material, or still
10 others that stimulate the inside tissue of the mammary gland, having a texture that allows the observation, for the touch, of the elements (5.a) and (5.b) simulators of existent pathologies inside the body (1).
2. "SIMULATOR DEVICE FOR HUMAN FEMININE MAMMARY GLAND", according to claim 1, characterized by the simulators elements of existent pathologies
15 inside the body (1), are fixed (5a) in the base (2) or in the stuffing material (3), simulating rigid pathologies, in an irregular and angular way, made with rigid material, and untiled (5b) from the base (2), floating in the stuffing material (3), simulating non fasten pathologies, in spherical or round ways, of smooth aspect, made in malleable material, inside an elastic spherical film.
- 20 3. "SIMULATOR DEVICE FOR HUMAN FEMININE MAMMARY GLAND", according to claim 1, characterized by the cover (4) of the body (1) be divided in five defined areas (A, B, C, D, E), representing the pigmented areola (6), whose area is

represented in four quadrants (A1, A2, A3 and A4), the nipple (7) and the remaining area of the gland represented in another four quadrants (B, C, D and it is).

4. "SIMULATOR DEVICE FOR HUMAN FEMININE MAMMARY GLAND",

according to claim 1, characterized by the nipple (7) having elements (5c, 5d, and 5e)

5 pathology simulators, corresponding to the emersion of three secretion types after being the nipple pressed or not with the fingers.

5. "SIMULATOR DEVICE FOR HUMAN FEMININE MAMMARY GLAND",

according to claim 1, characterized by characterized for the body (1) can be fastened in

a rigid frame (8), endowed with lowering (9) in its central part for the fitting of the body

10 (1), that should contain spaces (10) for orientations, as well as spaces (11) for any information of public interest and publicity.